

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

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New system spotlights spread of antibiotic resistance

A new surveillance system set up to provide early warning of the spread of dangerous bacteria has detected more than 1,000 cases across Australia resistant to last-line antibiotics – giving experts much better and more timely information to help combat the threat of antimicrobial resistance.

The first annual report of the National Alert System for Critical Antimicrobial Resistance (CARAlert) reveals 1,064 reports of highly resistant bacteria were lodged in the system from 17 March 2016 to 31 March 2017. Reports were made by 73 participating laboratories nationwide in the system's first full year of operation, which found at least one strain of bacteria with a 'critical antimicrobial resistance' – defined as bacteria that cannot be treated by last-line antibiotics – reported from every state and territory.

The CARAlert system was established by the Australian Commission on Safety and Quality in Health Care in March 2016, with funding from the Australian Government Department of Health. The system represents a significant element of the Commission's AURA (Antimicrobial Use and Resistance in Australia) Surveillance System. CARAlert collects information about highly resistant bacteria as they are confirmed, allowing trends to be identified and giving states and territories additional information to help containment efforts.

The new report shows that 86 entries were made to CARAlert system each month on average from April 2016 to March 2017. At least 37% of all critical antimicrobial resistances (CARs) were from patients in the community.

Before December 2016, the most commonly reported CARs were carbapenemase-producing Enterobacteriaceae, also known as CPE. One type of CPE, called the IMP type, is now endemic on the eastern seaboard. This means it is difficult to eliminate, and the Commission has recently published guidelines to help acute health facilities control the further spread of this infection.

Since December 2016, the most frequently reported type of CAR was a strain of the bacterium that causes gonorrhoea that is no longer susceptible to the antibiotic azithromycin. This azithromycin-resistant *Neisseria gonorrhoeae* accounted for 62% of all CARs reported to the CARAlert system in March this year, and 67% in February. There was an increase in reports of this CAR originating in South Australia in 2016, and numbers increased three-fold in NSW and Western Australia throughout 2016.

The Commission's Senior Medical Advisor for the AURA project, Professor John Turnidge, said CARAlert was "an extraordinarily valuable extra tool that helps health authorities around Australia pinpoint the emergence of dangerous strains of bacteria with minimal delay".

“This new system provides an important extra line of defence to complement existing information systems on the spread of antimicrobial resistance,” Professor Turnidge said.

The timely data on CARAlert reports of *N. gonorrhoeae* samples found to be resistant to azithromycin or another antibiotic, ceftriaxone, complement state and territory systems that monitor antimicrobial resistance as part of their sexually transmitted infection prevention and control strategies. As prevention and treatment are key components of effective control of sexually transmitted infections, the emergence of antimicrobial-resistant *N. gonorrhoeae* at the same time as sustained increases in notifications may lead to treatment failures and continued transmission.

The Commission will work with the states and territories by providing regular updates on the reporting of ceftriaxone or azithromycin non-susceptible *N. gonorrhoeae* through CARAlert, and promote use of the data to inform national and local treatment guidelines.

The number of records in the database to date means that it is not yet possible to draw specific conclusions from the analyses. However, the data undergo regular analysis, and statistical methods for evaluating time and geographic trends will be implemented as the data collection matures.

The Commission’s AURA Surveillance System of which CARAlert forms a part also includes surveillance of antimicrobial use. The most recent data on antimicrobial use are available in the Commission’s [Antimicrobial Use in Australian Hospitals](#) report, released in late June.

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Note: The Commission’s recent publication *Recommendations for the control of carbapenemase-producing Enterobacteriaceae* can be viewed and downloaded here:

<https://www.safetyandquality.gov.au/wp-content/uploads/2017/05/Recommendations-for-the-control-of-Carbapenemase-producing-Enterobacteriaceae.pdf>

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About AURA:

The Commission’s Antimicrobial Use and Resistance in Australia (AURA) Surveillance System has been funded by the Australian Government Department of Health and supports the National Antimicrobial Resistance Strategy 2015–2019. The AURA Surveillance System provides information to show where and when specific threats emerge, as well as guiding efforts to mitigate the risk of antimicrobial resistance at a local, state or territory, and national level. NAUSP is a key partner of the AURA project and directly supports implementation of the National Antimicrobial Resistance Strategy and initiatives to improve the appropriate use of antimicrobials.

About the Commission:

The Australian Commission on Safety and Quality in Health Care is an Australian Government agency that leads and coordinates national improvements in the safety and quality of health care based on the best available evidence. The Commission has an ongoing program of significant national activities with outcomes that are demonstrating direct patient benefit as well as creating essential underpinnings for ongoing improvement.